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EXAMINER	
KADING, JOSHUA A	

ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/783,134	PARK ET AL.	
	Examiner	Art Unit	
	Joshua Kading	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7 and 9-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,9-11,15-25,27,29-31 and 35-46* is/are rejected.

7)☒ Claim(s) *7, 12-14, 26, 28, and 32-34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 7 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitations of claim 7 are practically recited verbatim in amended independent claim 1, specifically the final two lines.

Claims 15-17, 26, 28, and 44 are objected to because of the following informalities:

Claims 15-17 and 44 all state, "inserted, to an upper layer" on the last line of each claim. The comma after inserted should be deleted.

Claims 26 and 28 both depend from cancelled claims. Therefore, it is assumed that claims 26 and 28 are also to be cancelled and will be treated as such.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

Claims 3 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,507,590 B1, Terho et al. (Terho) in view of U.S. Patent 6,556,556 B1, Sen et al. (Sen).

Regarding claim 3, Terho discloses, "a wireless data transmitting method (col. 8, lines 5-6 whereby sending packets via a mobile phone means the system is wireless) comprising: (a) when a length of a collection of data in a predetermined layer is longer than a length of a payload of a protocol, dividing the collection of data in the predetermined layer into a plurality of protocol units of data (figure 7, where element 58 is a user packet (application layer) that is split into two smaller packets 61 (protocol units) where the figure clearly indicates the size of the protocol units must be smaller than the application layer, see col. 8, lines 1-15 for a further explanation of figure 7); and (b) transmitting the protocol units of data of the lower layer, after adding length information...of the data divided into the protocol units to a header of each protocol unit (col. 8, lines 1-4 where the length information is included in header 59 of each such packet transmitted)."

However, Terho lacks what Sen discloses, the transmitting step further includes adding "location information of the data divided into the protocol units (col. 4, lines 57-60 where the sequence number in each header corresponds to location information)."

It would have been obvious to one of ordinary skill in the art at the time of invention to include the location information at the transmitting step for the purpose of determining if a frame has been "lost." The motivation for this being that corrective action can be taken if a lost frame has been detected thus maintaining the accuracy of the data transmitted (Sen, col. 4, lines 60-64).

Regarding claim 23, Terho and Sen disclose the method of claim 3. However, Sen lacks what Terho further discloses, "the protocol is a radio link protocol (RLP) (col. 8, lines 5-15)." It would have been obvious to one with ordinary skill in the art at the time of invention to have "the protocol" be a radio link protocol for the same reasons and motivation as in claim 3.

Claims 1, 2, 4, 5, 15-17, 21, 22, 24, 25, 27, and 35-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terho et al. in view of Sen et al. and in further view of U.S. Patent 5,657,316, Nakagaki et al. (Nakagaki).

Regarding claims 1 and 45, Terho discloses "a wireless data transmitting or receiving method comprising: (a) when a length of a collection of data in an application layer is longer than a length of a payload of a protocol, dividing the collection of data into a plurality of protocol units (figure 7, where element 58 is a user packet (application layer) that is split into two smaller packets 61 (protocol units) where the figure clearly indicates the size of the protocol units must be smaller than the application layer, see col. 8, lines 1-15 for a further explanation of figure 7), and transmitting the protocol units of data after length information...of the data divided into the protocol units (col. 8, lines 1-4 where the length information is included in header 59 of each such packet transmitted)..."

However, Terho lacks what Sen discloses, the transmitting step further includes adding "location information of the data divided into the protocol units (col. 4, lines 57-60 where the sequence number in each header corresponds to location information)."

It would have been obvious to one of ordinary skill in the art at the time of invention to include the location information at the transmitting step for the purpose of determining if a frame has been "lost." The motivation for this being that corrective action can be taken if a lost frame has been detected thus maintaining the accuracy of the data transmitted (Sen, col. 4, lines 60-64).

Terho and Sen however, lack what Nakagaki discloses, "(b) determining whether or not a loss of data occurred, by referring to the information on the length and location of data divided into the protocol units in (a) (figure 3A where the missing frame sequence numbers (location identifiers) indicate a loss of data), and inserting blank data into a part corresponding to the lost data to re-form the entire collection of data (figure 3B where the dummy frames (blank data) are inserted in the place of the missing frame sequence numbers), wherein said blank data is generated by referring to information on the length and location of data, which is added to a header of a preceding or succeeding protocol unit (figure 3B where the dummy frames (blank data) are inserted in the place of the missing frame sequence numbers (location identifiers) and where the header information is as described in claims 1 and 5, i.e. Terho col. 8, lines 1-20)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the determining of loss of data and inserting blank data for the purpose of creating the original data length. The motivation for doing this is so the

appropriate transmission protocol so the data may be transmitted properly (Nakagaki, col. 2, lines 22-30).

Regarding claims 5 and 46, Terho discloses "a wireless data receiving method wherein application data is divided into a plurality of predetermined protocol units (figure 7, where element 58 is a user packet (application layer) that is split into two smaller packets 61 (protocol units) where the figure clearly indicates the size of the protocol units must be smaller than the application layer, see col. 8, lines 1-15 for a further explanation of figure 7), and a bit stream, in which length...of data divided into the protocol units is added, is received (col. 8, lines 1-4 where the length information is included in header 59 of each such packet transmitted)..."

However, Terho lacks what Sen discloses, the bit stream further includes "location information of the data divided into the protocol units (col. 4, lines 57-60 where the sequence number in each header corresponds to location information)."

It would have been obvious to one of ordinary skill in the art at the time of invention to include the location information at the transmitting step for the purpose of determining if a frame has been "lost." The motivation for this being that corrective action can be taken if a lost frame has been detected thus maintaining the accuracy of the data transmitted (Sen, col. 4, lines 60-64).

Terho and Sen however, lack what Nakagaki discloses, the method steps comprising "(a) receiving the predetermined protocol units in a predetermined sequence, and checking whether or not data is lost, by referring to the information on

the length and location of data added to each of the predetermined protocol units (figure 3A where the missing frame sequence numbers (location identifiers) indicate a loss of data); and (b) when the result of checking (a) indicates that data is lost from the protocol units, re-forming the collection of data by adding an amount of blank data equal to an amount of data lost, into a part from which the data was lost, and then transmitting the re-formed data to an upper layer (figure 3B where the dummy frames (blank data) are inserted in the place of the missing frame sequence numbers and col. 2, lines 1-18 describe sending the re-formed data to the upper layer for further processing), wherein said blank data is generated by referring to information on the length and location of data, which is added to a header of a preceding or succeeding protocol unit (figure 3B where the dummy frames (blank data) are inserted in the place of the missing frame sequence numbers (location identifiers) and where the header information is as described in claims 1 and 5, i.e. Terho col. 8, lines 1-20)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the determining of loss of data and inserting blank data for the purpose of creating the original data length. The motivation for doing this is so the appropriate transmission protocol so the data may be transmitted properly (Nakagaki, col. 2, lines 22-30).

Regarding claim 38, Terho discloses "an apparatus for transmitting or receiving wireless data, comprising: a transmitting means (col. 8, lines 5-6 where the mobile phone is the transmitting means) for dividing a collection of data in an application layer

into a plurality of protocol units, adding length information...of the data, to a header of each unit and transmitting the protocol units (figure 7, where element 58 is a user packet (application layer) that is split into two smaller packets 61 (protocol units) where the figure clearly indicates the size of the protocol units must be smaller than the application layer, see col. 8, lines 1-15 for a further explanation of figure 7; col. 8, lines 1-4 where the length information is included in header 59 of each such packet transmitted)..."

However, Terho lacks what Sen discloses, the bit stream further includes "location information of the data divided into the protocol units (col. 4, lines 57-60 where the sequence number in each header corresponds to location information)."

It would have been obvious to one of ordinary skill in the art at the time of invention to include the location information at the transmitting step for the purpose of determining if a frame has been "lost." The motivation for this being that corrective action can be taken if a lost frame has been detected thus maintaining the accuracy of the data transmitted (Sen, col. 4, lines 60-64).

Terho and Sen however, lack what Nakagaki discloses, "a receiving means (col. 2, line 13) for determining whether or not data included in the protocol units is lost, by referring to the information on the length and location of the data added to the header of each of the predetermined protocol units received from the transmitting means (figure 3A where the missing frame sequence numbers (location identifiers) indicate a loss of data), and re-forming the collection of data by inserting blank data into any part from

which data is lost (figure 3B where the dummy frames (blank data) are inserted in the place of the missing frame sequence numbers)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the determining of loss of data and inserting blank data for the purpose of creating the original data length. The motivation for doing this is so the appropriate transmission protocol so the data may be transmitted properly (Nakagaki, col. 2, lines 22-30).

Regarding claim 40, Terho, Sen, and Nakagaki disclose the apparatus of claim 38. However, Sen and Nakagaki lack what Terho further discloses, "a data determining unit for comparing a length of the collection of data in the application layer with a size of a payload (col. 8, lines 1-15 where it is implied that there is a data determining unit by the fact that the user packet is either put in a single RLP frame or it is divided into several, such a decision must be made based on a comparison of lengths); and a format processing unit for dividing the collection of data into a plurality of protocol units when the length of the application layer is longer than the length of the payload, and adding at least one of the information and the location information of the divided data to the header of each protocol unit (col. 8, lines 5-15 where it is again implied that there is a format processing unit to divide the user data among several of the RLP data blocks)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the data determining unit and format processing unit for the same reasons and motivation as in claim 38.

Regarding claims 2, 4, 39, 41, and 42, Terho and Sen disclose the method of claim 3, and Terho, Sen, and Nakagaki disclose the method of claim 1 and the apparatus of claims 38 and 40. Although Terho, Sen, and Nakagaki do not explicitly disclose "a lower layer supports the protocol", it is obvious to one with ordinary skill in the art that the lower layer(s) support the protocol. As is known in the art, layered communications must have each lower layer supporting the protocol used by each layer above it. The motivation being that if the lower layers couldn't support the protocol, the transition from one layer to the next could not happen and communication would not happen.

Regarding claims 15, 16, 17, and 44, Terho, Sen, and Nakagaki disclose the methods of claims 1, 2, and 5 and the apparatus of claim 42. However, Terho and Sen lack what Nakagaki further discloses, "wherein in (b), when the loss of data from the protocol units is determined, signaling whether or not the blank data is inserted, to an upper layer (col. 2, lines 8-30 whereby inserting the dummy cells at the "data length compensating device" an upper layer of the protocol has been signaled as to the loss of the data units and attempts to remedy the situation through inserting dummy cells)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the signaling an upper layer as to the loss of data for the same reasons and motivation as in claims 1, 2, 5, and 42.

Since claim 7 has been objected to as failing to further limit the parent claim, claim 27 (which depend from claim 7) will be treated as if it depends from claim 2.

Regarding claims 21, 22, 24, 25, 27, and 35-37, Terho, Sen, and Nakagaki disclose the methods of claims 1, 2, 5, 15, 16, and 17. Terho and Sen disclose the method of claim 4. However, Sen and Nakagaki lack what Terho further discloses, "the protocol is a radio link protocol (RLP) (col. 8, lines 5-15)." It would have been obvious to one with ordinary skill in the art at the time of invention to have "the protocol" be a radio link protocol because the communication is done wirelessly. The motivation for have a radio link protocol is to allow the non-wireless communication to be transmitted and received wirelessly thus connecting two types of network in communication, i.e. a land based communication network and a wireless network.

Regarding claim 43, Terho, Sen, and Nakagaki disclose the apparatus of claim 42. However, Terho and Sen lack what Nakagaki further discloses, "the data added to the header is extracted by the packet extracting unit (col. 2, lines 19-25 where the sequence number is part of the header and must be extracted to determine if the sequence is progressing without loss of data)." It would have been obvious to one with ordinary skill in the art at the time of invention to have the header data extracted for the same reasons and motivation as in claim 42.

Claims 9-11, 18-20, and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terho et al., Sen et al., and Nakagaki et al. as applied to claims 1, 2, and 5 above, and further in view of U.S. Patent 6,728,208 B1, Puuskari.

Regarding claims 9-11, Terho, Sen, and Nakagaki disclose the methods of claims 1, 2, and 5. However, Terho, Sen, and Nakagaki lack what Puuskari discloses, "in the step (b), when data in the first protocol unit of the plurality of protocol units is lost, not transmitting all of the protocol units to the upper layer (col. 4, lines 46-54 although it is not stated that the first protocol unit is lost, the same principal of dropping packets to maintain quality in the real-time environment applies to all protocol units)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the dropping of the packets with the methods of claims 1, 2, and 5 for the purpose of maintaining an acceptable level of real-time quality communications (Puuskari, col. 4, lines 51-54). The motivation for wanting an acceptable level of quality in a real-time environment is so that data received in the future is not lost or corrupted due to the retransmission of a previous lost piece of data.

Regarding claims 18-20, Terho, Sen, and Nakagaki disclose the methods of claims 1, 2, and 5. However, Terho, Sen, and Nakagaki lack what Puuskari discloses, "in the step (b), when the loss of data from the protocol units is determined, determining whether or not to transmit the data according to a characteristic of an application layer (col. 4, lines 46-54 where the traffic type is a characteristic of an application layer)." It

would have been obvious to one with ordinary skill in the art at the time of invention to include the determining whether or not to transmit based on a characteristic of the application layer with the methods of claims 1, 2, and 5 for the purpose of maintaining an acceptable level of real-time quality communications (Puuskari, col. 4, lines 51-54). The motivation for wanting an acceptable level of quality in a real-time environment is so that data received in the future is not lost or corrupted due to the retransmission of a previous lost piece of data.

Regarding claims 29-31, Terho, Sen, Nakagaki, and Puuskari disclose the methods of claims 1, 2, and 5. However, Sen, Nakagaki, and Puuskari lack what Terho further discloses, "the protocol is a radio link protocol (RLP) (col. 8, lines 5-15)." It would have been obvious to one with ordinary skill in the art at the time of invention to have "the protocol" be a radio link protocol because the communication is done wirelessly. The motivation for have a radio link protocol is to allow the non-wireless communication to be transmitted and received wirelessly thus connecting two types of network in communication, i.e. a land based communication network and a wireless network.

Allowable Subject Matter

Claims 12-14 and 32-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments, see REMARKS, section *I. The Drawings*, filed 18 October 2004, with respect to the objections to the drawings have been fully considered and are persuasive. The objections to the drawings have been withdrawn.

Applicant's arguments, see REMARKS, section *II. Claim Objections*, filed 18 October 2004, with respect to the objections to the claims have been fully considered and are persuasive. The objections to the claims have been withdrawn.

Applicant's arguments with respect to claims 1-11, 15-31, and 35-46 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Kading whose telephone number is (571) 272-3070. The examiner can normally be reached on M-F: 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (571) 272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joshua Kading
Examiner
Art Unit 2661

March 24, 2005

BOB PHUNKULH
PRIMARY EXAMINER